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Maturing Your Approach to “Security Management”

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Key topics

Challenges for doing “security”

Security approach roadblocks

New perspectives on the problem

Maturing your security approach



Organizational challenges -1

Scope of security is the entire organization

Requires management and technologists to work together

Industry bias toward technology solutions

Forces constant risk vs. reward trade-offs

Not naturally a profit-centric activity





Organizational challenges -2

Not a core competency of an organization

Requires everyone in the organization to play a part

Everyone has a different view and objective

Lack of common language and lexicon

Lack of data and metrics





Why do we fail?

There are several natural barriers to effectiveness

May be unlike any problem organizations have had to solve (somewhat resembles Y2K)

Complex problem requires an adaptive, flexible approach



Common problems

Defining the wrong target

Focusing too narrowly

Treating security as a technical specialty

Managing to regulations

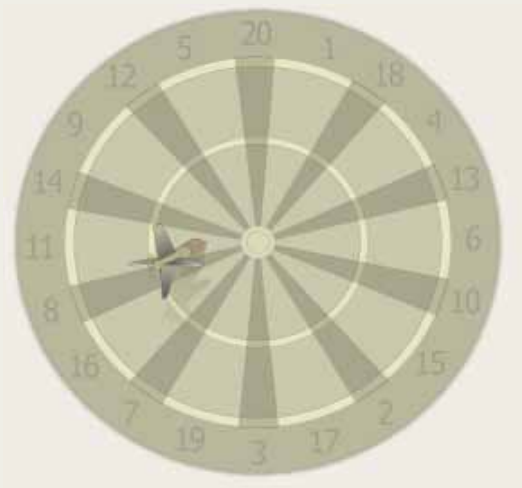
Failure to recognize complexity



Defining the wrong target

Problem

The desired outcome of the security approach is ambiguous.



Symptoms

Unclear security goals

Goals not well communicated

No measures for success

Can't assure stakeholders that "security" has been accomplished



Narrow focus

Problem

Focus of security approach
technology-centric

Symptoms

Security viewed as a
technology problem

Assumption that secure
technology = secure
organization

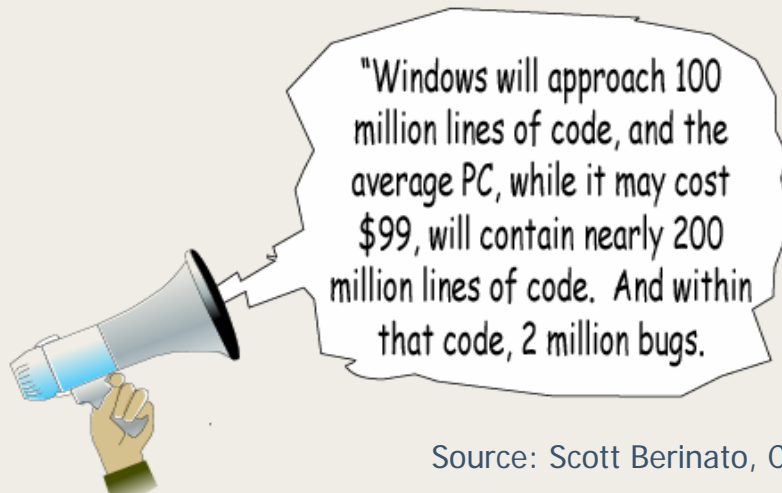




Technical specialty

Problem

Implementation and monitoring of security approach is a technical specialty.



Symptoms

CSO/CISO and security professionals in technical roles

IT is exclusive domain of security activities

IT owns security approach or strategy

Source: Scott Berinato, CIO Magazine, December 15, 2003



Regulation-driven

Problem

Regulatory compliance defines the purpose and direction of the security approach.



Symptoms

Regulations overly influence the approach

Comply with regulations = secure organization

Security standards derived from regulations



Lack of flexibility

Problem

The security approach cannot adapt to changing environmental conditions.



Symptoms

Security approach quickly obsolete

Approach out of synch with organization's strategic objectives

Time spent on securing assets that are not critical to accomplishing the mission

Source: Miya Knight, www.vnunet.com/news/1147007



Organizational impacts

Misalignment of operational and security goals

False sense of accomplishment

Failure to utilize all necessary skills/resources

Compliance at the expense of effectiveness

Approach breaks at every twist and turn

Overall ability to manage security is impaired



Maturing your approach



Change your perspective

Expand your objective

Let the organization drive

Embrace the resiliency concept

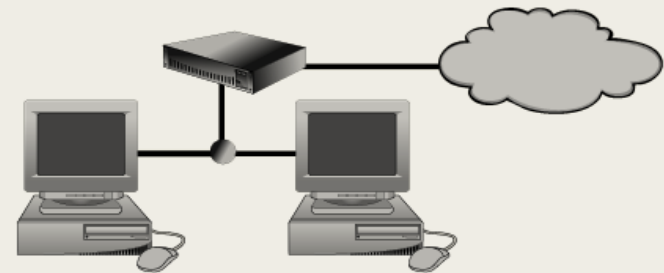


Expand your objective

View the organization as the benefactor of “security” not IT

Change perspective from **technical “network”** to **organizational “network”**

Aim to make the organization’s mission both **sustainable** and **adaptable** to its environment





Let the organization drive

Use organizational drivers—mission, strategic objectives, goals, CSFs—as the foundation for security

Align security strategy and approach with drivers and ensure they are adaptable to changes

Aim for sponsorship as high in the organization as possible



Move from security to resiliency





What is resiliency?

Physical property of a material that allows it to spring back after deformation that has not exceeded its elastic limit [www.cogsci.princeton.edu]

“. . .ability to withstand systemic discontinuities”
[Booz Allen]

“. . .ability to adapt to new risk environments”
[Booz Allen]

Source: Booz Allen - Enterprise Resilience: Managing Risk in the Networked Economy



Security vs. resiliency

Security



Asset-focused

Reactive

Protective (defensive posture)

Maintain and sustain

Active

Resiliency



Organization-focused

Proactive

Adaptive (offensive posture)

Sustain *and improve*

Transparent



Resilient organizations

Align capabilities to collaborate

Elevate risk management to organizational level

Rely on the system of internal controls

Sense, respond, and improve

Establish transparency



Moving toward resiliency -1

Sharpen the target

Utilize critical success factors for alignment

Utilize and mobilize the capabilities of the organization

Involve the right people—spread responsibility throughout organization



Moving toward resiliency -2

Rely on operational excellence

Rely on strong system of internal controls

Manage as a process and improve

Select metrics for success and measure!



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Questions?



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Presentation references

Randy Staff, Jim Newfrock, and Michael Delurey, "Enterprise Resilience: Managing Risk in the Networked Economy," Enterprise Resilience: Risk and Security in the Networked World, 2003 Booz Allen Hamilton; www.strategy-business.com

Scott Berinato, "The Future of Security - After the Storm, Reform," *CIO Magazine*, December 15, 2003; www.cio.com/archive/121503/securityfuture.html

Miya Knights, "Process not technology tightens security," (quoting Phillip Gregory of Norwich Union) March 11, 2003; www.vnunet.com/news/1147007